

LISTing Newsletter

Newsletter of the Long Island Sinclair/Timex Users Group
(Incorporating N.Y.T.S.E.)

MAY 1992 ISSUE

SUN	MON	MAY 1992 TUE	WED	THU	FRI	SAT
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31						

DONT FORGET L. I. S. T. MEETING at
2pm, SUNDAY, May, 17

=====

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Listing Policy

Annual Dues...\$ 16.00

One "sample" copy sent upon receipt of a large SASE.
Copies provided on EXCHANGE BASIS with other bona fide user groups.
LISTing is published monthly except July and August by LIST (Long
Island Sinclair Timex) Group, a non profit user group.

We are always looking for articles, programs, reviews, etc. to keep
our members informed and entertained. You maintain full copyright.

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LIST Long Island Sinclair Timex users group Incorporating * NYTSE

TO: All Listings Readers
FROM: Fred Stern "Listings Editor"
SUBJECT: Changes in the Newsletter

Dear Reader :

In the past few issues of Listings I have made minor changes in the format. This issue starts two major changes:

- 1 Listing has been reduced from 12 pages to 10 pages**
- 2 Listing is now mailed in an envelope.**

I am writing this memo to explain the reason for these changes.

We have received returned issues of Listing which were damaged in the mail. The postal service machinery has been ripping off the first page of the newsletter, removing the address. To resolve this problem, Listing will now be mailed in an envelope. In order to maintain the 1 oz. mailing weight and prevent increased postage, the size of the newsletter had to be reduced by one sheet of paper.

I feel confident that these changes will improve the reliability of delivery of this newsletter.

Finally, if you did not receive your copy of Listing in February, March, or April, please contact me at the address below and arrangements for a replacement will be made. You will receive your missing issues and hopefully this problem will be resolved.

**Fred Stern
Listing Editor
5 PERI LN
Valley Stream NY 11581**

***New York Timex Sinclair Enthusiasts
prepared by Tom Skapinski**

LIST OFFICERS
 ++++++
 PRES. HARVEY RAIT
 TRES. ROBERT MALLOY
 COR.SEC. JOHN PAZMINO
 EDITOR. FRED STERN
 LIBR. TOM SKAPINSKI
 ++++++

PLEASE SEND INQUIRIES TO:
 LIST
 MR. HARVEY RAIT
 5 PERI LANE
 VALLEY STREAM, N.Y. 11581

PLEASE SEND SUBMISSIONS TO:
 LISTING
 MR. FREDERIC STERN
 214 ROBERTS ST.
 HOLBROOK, N.Y. 11741
 ++++++

NYTSE
 ++++++
 NYTSE MEETS ON MONDAY THE WEEK
 AFTER THE LIST MEETING AT;
 MISS KIMS RESTAURANT
 PARK AVENUE SOUTH
 BETWEEN 21 ST. AND 22 ST.
 MEETINGS START 7:30 PM.

COMING EVENTS:

 MAY. 17, 1992 LIST MEETING.
 MAY. 18, 1992 NYTSE MEETING

MEETING MINUTES
 REPORTED BY:
 FRED AND MICHAEL STERN

MAR. 8, 1992

 HARVEY CALLED THE MEETING TO
 ORDER AT 2:30PM.

CORRESPONDENCE

WE RECEIVED NUMEROUS CORRESPONDENCE THIS MONTH WHICH INCLUDED NEW MEMBERSHIPS, MEMBERSHIP RENEWALS, AND REQUESTS FOR INFORMATION.

CORRESPONDENCE REQUESTING INFORMATION WILL BE FORWARDED TO JOHN PAZMINO. (JOHN WAS UNABLE TO MAKE THIS MEETING.)

SAD NEWS
 *** ****

WE WERE SADDENED TO LEARN OF THE PASSING OF FELLOW LIST MEMBER HUGO DIGIOVANNI. HUGO WAS AN ACTIVE MEMBER OF THIS ORGANIZATION. HE CONTRIBUTED ARTICLES FOR PUBLICATION IN LISTING, AS WELL AS GIVE SOUND HARDWARE AND SOFTWARE ADVICE DURING MEETINGS. AFTER HUGO SUFFERED A STROKE WHICH LEFT HIM PARALYZED ON HIS LEFT SIDE, HE WAS RECUPERATING AT THE WOODBURY NURSING HOME. TO HELP OUR FRIEND, AND OTHER PATIENTS, LIST HELD MONTHLY OPEN MEETING AT THE NURSING HOME FOR ALL TO ATTEND. OUR SINCERE CONDOLENCES ARE EXTENDED TO HUGO'S FAMILY. HE WILL BE MISSED BY US ALL.

WE WERE ALSO SORRY TO HEAR THAT THE MARCH 1992 EDITION OF THE SMUG NEWSLETTER WILL BE THE LAST. AFTER 9 YEARS IN PRINT, THE EDITOR DECIDED TO CALL IT QUITS.

OTHER HAPPENINGS

WE WANT TO THANK MR. ROBERT WEBSTER OF MAPLEWOOD MISSOURI FOR HIS DONATION OF MAGAZINES, AND DOCUMENTS TO THE LIST LIBRARY.

TODAY WAS ALSO THE TRENTON COMPUTERFEST AT MERCER COLLEGE N.J. THIS IS PROBABLY THE REASON FOR TODAY'S POOR MEETING TURNOUT.

THE BALANCE OF THE MEETING WAS A ROUNDTABLE DISCUSSION ON WHAT IS HAPPENING IN THE QL WORLD.

CLASSIFIEDS

 THIS CLASSIFIED SECTION IS AVAILABLE TO ALL LIST MEMBERS FREE OF CHARGE. THE ONLY RESTRICTION IS THAT IT IS TO BE USED ONLY FOR THE SEEKING, SELLING OR SWAPPING OF SINCLAIR, TIMEX OR MICROACE COMPUTER EQUIPMENT, PERIPHERALS AND SOFTWARE. LISTING, LIST, AND ITS OFFICERS DO NOT ENDORSE, WARRANTY, OR GUARANTEE ANY OF THE ITEMS LISTED IN THIS CLASSIFIED SECTION

 I HAVE MERCHANDISE OF INTEREST TO THE TIMEX/SINCLAIR HACKER AND EXPERIMENTER. SEND A S.A.S.E TO VAN S. VANGOR 346 C. RETREAT ROAD ISLAND FALLS, MAINE. 04747 FOR MY LIST AND PRICES.

THE FOLLOWING PUBLICATIONS ARE AVAILABLE ONLY THROUGH LIST:

ZX-81/TS1000 TECHNICAL TIDBITS
 TECHNICAL TIDBITS PART II
 SAVINGS AND LOAD OF THE TIMEX COMPUTER
 \$4.00 EACH.

A FINAL WORD

 MY NAME IS FRED STERN AND I AM THE EDITOR OF THIS EDITION OF LISTING.

WELL, ANOTHER ISSUE TO PRINT OF LISTING. AS I SAID IN MY MEMO ON PAGE 2 I HAVE MADE CHANGES TO THE FORMAT OF THIS NEWSLETTER WHICH I FEEL ARE FOR THE BETTER. WHAT DO YOU HAVE TO SAY? SEND YOUR COMMENTS IN TO HELP MAKE LISTING NOT JUST BETTER, BUT THE BEST.

SPECIAL THANKS ARE EXTENDED TO; MICHAEL STERN, AND TOM SKAPINSKI WHO DID A *DYNAMITE*JOB IN HELPING TO GET THIS NEWSLETTER OUT.

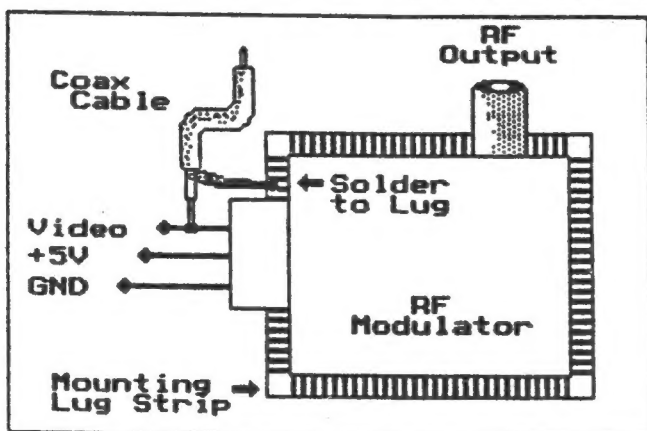
SEE YOU ALL AT THE NEXT MEETING.

QUICK AND EASY VIDEO OUTPUT FOR THE ZX81 AND TS1000

From the March 1983 issue of Computers and Electronics Magazine

This past weekend I set aside the time to go through my collection of old computer and electronic magazines. Most of them were from the early 1980s, and were bought because of their Timex-Sinclair articles and other electronic projects.

The following information can be found in the March 1983 issue of Computers and Electronics Magazine in an article by Les Solomon entitled "Adding a Video Monitor to your Sinclair ZX81". As Mr. Solomon points out, the modification below can be made by



Video Monitor Output
for the ZX81

adding a small piece of thin coax cable to the video out wire on the RF Modulator module (see figure above).

The center lead of the coax cable is soldered to the Video wire, and the braided sheilding wire is pulled away and soldered to the mounting lug strip for grounding (see figure).

The other end of the coax cable should contain an RCA connector which is used to plug into the back of a composite monitor.

Mr. Solomon recommends when attaching the braid to the metal enclosure, "...the bottom grips can be used as the enclosure is solder-proof aluminum."

A better way to add a composite video output is to use a short piece of coax cable attached to a female RCA connector. This connector can be added to the back of the ZX81 or TS1000 by cutting a small hole in the back

of the computer and mounting the connector through it. After that, all that is needed is a cable like the one used to go between the TV output and the Game/TV switch box.

Additional Timex-Sinclair Video Project Information

Another project regarding TS1000 and ZX81 appeared in Computer and Electronics Magazine May 1983 issue. The article was written by Steve Pence and it covered modifications to provide direct video output and white-on-black display.

The project involves building a circuit which includes a buffer amplifier, a comparator (to separate the sync pulses), and additional circuitry for providing a composite and inverse video output. There is also a switch which allows the user to flop between inverse and standard video output.

The article is well written and contains a parts list, a schematic, a wave-form figure, a foil pattern for making the printed circuit board, and the component layout.

Mr. Pence wraps up his article with a diagram of the TS1000/ZX81 for installation as well as information on adjusting both the circuit and the users monitor for the best picture.

Both articles are well written and concise. They contain all the information required to make the modification within one issue of the magazine.

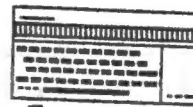
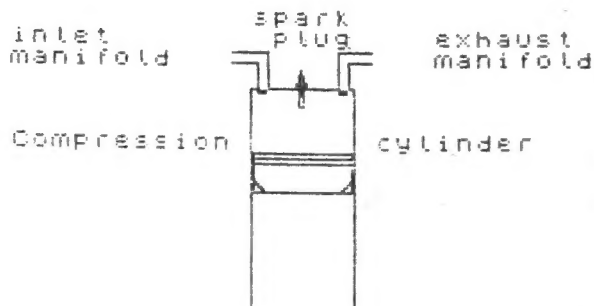
I highly recommend anyone with a TS1000/ZX81 to go to their public library and obtain a copy of both articles for their Timex-Sinclair project files.

And Last But Not Least...

If there is anyone out there who still owns a ZX80, there is a nifty little circuit in The Best Of Sync magazine which shows a schematic diagram for directly inverting the video signal of the ZX80, and adding a composite video output signal.

NOTE: ISTUG AND THIS NEWSLETTER ASSUME NO RESPONSIBILITY FOR THE MODIFICATIONS MENTIONED ABOVE.

FOUR STROKE ENGINE



NOTE: This program
is for the TS-2068
and the Spectrum
Computers.
Prepared by Tom Skapinski

*****PRESS P TO PAUSE*****
*****ANY KEY TO SPEED UP*****

```

6 REM THIS PROGRAM DEMONSTRATES THE PRINCIPLE OF THE FOUR ST
ROKEENGINE (GRAPHIC DEMO)
10 REM **four stroke engine**
50 REM *****
70 REM *****
80 BORDER 1: PAPER 6: INK 2: CLS
120 PRINT FLASH 1; PAPER 7; AT 7,14; INK 3; "FOUR"; AT 9,13; INK
1; "STROKE"; AT 11,13; INK 4; "ENGINE"
140 REM *****
150 REM *user defined graphics
160 REM *****
170 GO SUB 1000
180 REM *****
190 REM *build cylinder
200 REM *****
210 BORDER 3: PAPER 7: CLS
220 PRINT BRIGHT 1; AT 0,7; INK 1; "FOUR STROKE ENGINE"
230 PLOT 96,130
240 DRAW 10,0: DRAW 0,-10: DRAW -3,0: DRAW 0,-84
250 PLOT 96,134
260 DRAW 14,0: DRAW 0,-14: DRAW 28,0: DRAW 0,14: DRAW 14,0
270 PLOT 152,130
280 DRAW -10,0: DRAW 0,-10: DRAW 2,0: DRAW 0,-84
290 PRINT INK 0; AT 6,15; "A"; AT 7,15; "B"
291 GO SUB 800
293 PRINT AT 20,0; INK 1; PAPER 6; "*****PRESS P TO PAUSE****
****"; AT 21,0; "*****ANY KEY TO SPEED UP*****"
295 REM *****
300 REM ****induction****
305 REM *****
307 PRINT AT 7,17; INK 0; "C"; INK 7; PAPER 1; AT 9,1; "Induction"
; AT 5,10; INK 2; PAPER 7; "DD"; AT 5,19; " "
310 FOR n=9 TO 15
320 PRINT INK 1; PAPER 7; AT n-1,13; " "; AT n,13; PAPER 6; "E
EEFG"; AT n+1,13; PAPER 6; "HIIIJ"
325 PAUSE 15
327 IF INKEY$="P" THEN GO SUB 700
330 NEXT n
400 REM *****
410 REM ****compression****
420 REM *****
425 PRINT AT 7,13; INK 0; "C"; AT 9,1; INK 7; PAPER 1; "Compressio
n"; AT 5,10; PAPER 7; " "
430 FOR n=15 TO 9 STEP -1
440 PRINT INK 1; AT n+2,13; PAPER 7; " "; AT n,13; PAPER 6; "E
EEFG"; AT n+1,13; PAPER 6; "HIIIJ"

```



```

450 PAUSE 15
460 NEXT n
500 REM *****
510 REM ****ignition****
520 REM *****
530 PRINT AT 9,1; INK 7; PAPER 1;"Ignition  "
540 FOR n=9 TO 15
545 PRINT AT 8,15; FLASH 1; INK 2; PAPER 6;"K"
550 PRINT INK 1;AT n-1,13; PAPER 7;"      ";AT n,13; PAPER 6;"E
FFFG";AT n+1,13; PAPER 6;"HIIIJ"
560 PAUSE 15
570 NEXT n
600 REM *****
610 REM ****exhaust****
620 REM *****
630 PRINT PAPER 7;AT 7,17;" ";AT 8,15;" ";AT 9,1; INK 7; PAPER
1;"Exhaust ";AT 5,19; INK 2; PAPER 7;"DD"
640 FOR n=15 TO 9 STEP -1
650 PRINT INK 1;AT n+2,13; PAPER 7;"      ";AT n,13; PAPER 6;"E
FFFG";AT n+1,13; PAPER 6;"HIIIJ"
660 PAUSE 15
665 IF INKEY$="P" THEN GO SUB 700
670 NEXT n
680 PRINT AT 7,13; INK 0;" "
690 GO TO 300
700 REM ***pause routine****
710 PRINT AT 21,0; INK 1; PAPER 6;"*PRESS C TO CONTINUE S TO ST
OP*"
720 PAUSE 0
730 IF INKEY$="C" THEN PRINT AT 21,0; INK 1; PAPER 6;"*****
PRESS P TO PAUSE*****": RETURN
740 IF INKEY$="S" THEN PRINT AT 21,0; INK 1; PAPER 6;"****HAPP
Y MOTORING - GOODBYE****": STOP
750 GO TO 710
800 REM *****
805 REM ****labels****
810 REM *****
820 PRINT AT 3,13; INK 0;"spark"
830 PRINT AT 4,1; INK 0;"inlet      plug      exhaust"
840 PRINT AT 5,1; INK 0;"manifold"
850 PRINT AT 5,22; INK 0;"manifold"
860 PRINT AT 9,19; INK 0;"cylinder"
870 PRINT AT 19,13; INK 0;"piston"
890 RETURN
1000 RESTORE 1000: REM routine to store user defined graphics
1010 LET a$="EFGHIJABKDDC"
1020 LET n=0
1030 LET n=n+1
1040 IF n>12 THEN RETURN
1050 LET b$a$(n)
1090 DIM c(8)
1100 FOR m=0 TO 7
1105 LET p=m+1
1110 READ c(p)
1112 POKE USR b$+m,c(p)
1120 NEXT m
1130 GO TO 1030

```

CONTINUE ON PAGE 8

The Timex/Sinclair 2040 Printer

When Clive and Ian Sinclair designed the \$99 computer, the world was truly amazed. Sometimes lightning does strike twice, because they've done it again, with a \$99 printer.

As you would expect from Timex, the company that markets Sinclair's computer in America, this printer is small, inexpensive, and works perfectly when you take it out of the box.

What will the Timex/Sinclair 2040 Printer do? First of all, you can make a printed copy of your own BASIC programs. This can save you hours of trying to read your program off the TV screen, no easy task since the screen can handle only 22 lines at a time. Second, if you have created a picture on your screen with Timex/Sinclair's graphics, you can make a copy of that picture on the printed page. Third, it will print individual characters on the page, for simple word processing programs.

The 2040 is a particular kind of dot matrix printer. Each letter is printed by little wires that move, creating the letters by electrical charges that "burn" holes in a special paper. Each letter is made from a grid of dots, eight dots high and eight dots wide. The line length of the printed page is 32 characters across.

Setting It Up

After unpacking the printer, all you have to do is plug the printer cable into the back of the computer. If you have a RAM pack, you can plug the cable in between the computer and the RAM pack. The printer comes with its own 24-volt power supply, which plugs into any 110-volt wall socket.

Be careful, however, when connecting the printer. If you plug in the printer while the computer is on, the sudden rush of

Seth McEvoy

electricity could overload one of the integrated circuits. Also, if you attempt to print anything before you load the paper, it could damage the printing mechanism.

The printer has simple controls—an ON key and an OFF key. You can also test the printer by pressing the OFF button while pressing the ON button. If the printer is working correctly, it will print rows of 1's and 8's until you stop it by pressing OFF again. Furthermore, you can advance the paper by pressing ON, if the printer is already ON.

Unfortunately, the printer does not have a light to warn you when the power switch is on. The motor heats up a great deal, and if the printer is left on a long time, it may wear out some of the components.

Timex supplies one 82-foot roll of paper, 4 inches wide. Further rolls of this special thermal paper should be available from Timex dealers at \$2 a roll. Timex cautions you not to buy any other kind of paper, but the HP-85 computer from Hewlett-Packard uses the same kind of paper. Since the paper from Timex has a red strip to warn you when you are near the end of the roll, you're safest using Timex paper. (Perhaps you could ink the inner part of one end of a non-Timex roll with a red felt-tip pen.)

Making It Work

Using the printer is easy. You can use three special commands already built into Timex/Sinclair BASIC: COPY, LLIST, and LPRINT.

COPY is used to transfer whatever is on the computer screen to the printer. You may type it directly (by pressing the Z key) or it may be part of a program.

The figure shows what a digitized apple looks like on the printer. The picture was first "printed" on the screen (using the PRINT command) and then copied to the printer using the COPY command.

That apple was printed by using inverse spaces (Graphics key and Space) and shaded squares (Graphics key and Shift H).

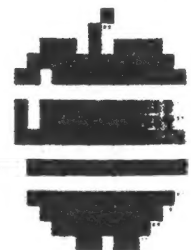
If you look closely, you will notice that the tiny squares that make up the picture, such as the top of the apple stem, are not exactly square. You can also see the individual wire tracks across the picture. However, for \$99, this is quite acceptable. The person who buys a Timex/Sinclair computer is not likely to want to spend \$1000 for a high-resolution dot matrix printer.

Here is the program that was used to print the apple picture to the TV screen. We can make a copy of the program (listing) by typing LIST (Shift G).

```

8 REM
10 PRINT "
15 PRINT "
20 PRINT "
30 PRINT "
40 PRINT "
100 PRINT "
120 PRINT "
130 PRINT "
140 PRINT "
150 PRINT "
160 PRINT "
165 PRINT "
170 PRINT "
180 PRINT "
190 PRINT "
195 PRINT "
197 PRINT "
200 PRINT "
210 PRINT "
215 PRINT "
220 PRINT "
280 COPY
400 STOP

```



A IS FOR APPLE

Apple Picture by Laurie Smith

LLIST will print out whatever BASIC program is currently in memory. If you have a long program, it will print out the whole thing in one long roll.

Suppose you have a different application, say a simple word processor. You can use the LPRINT command to print individual letters on the printer. The computer waits until the entire line is ready, and then it prints your line.

The following program

```

4 REM
5 LPRINT "
"
6 LPRINT
7 LPRINT " PRINTABLE CHARAC
TERS"
8 LPRINT " ON THE TIMEX 204
5 PRINTER"
9 LPRINT
10 LET A=1
1000 LPRINT CHR$ A;" ";
1010 LET A=A+1
1020 IF A>63 AND A<128 THEN GOTO
1010
1030 IF A/16=INT (A/16) THEN GOT
O 1100
1040 IF A=191 THEN GOTO 1090
1050 GOTO 1000
1060 STOP
1070 LPRINT
1080 LPRINT
1090 GOTO 1040
1100 STOP

```

When you run the program, this is what it should print out:

PRINTABLE CHARACTERS
ON THE TYPEX 2040 PRINTER

·	·	·	.	!	?	£	"	?	
()	<	=	+	-	/	.	0	1 2 3
4	5	6	7	8	9	A	B	C D E F G H I J	
K	L	M	N	O	P	Q	R	S T U V W X Y Z	
[]	^	_	`	'	~	.	! " # \$ % & ' ()	
*	+	=	-	/	:	;	<	> ? @ A B C D E	
F	G	H	I	J	K	L	M	N O P Q R S T U	
V	W	X	Y	Z	[]	^	_ ` ' ~ . ! " # \$ %	
&	'	()	*	+	=	-	/ : ; < > ? @ A B C	
D	E	F	G	H	I	J	K	L M N O P Q R S T	
U	V	W	X	Y	Z	[]	^ _ ` ' ~ . ! " # \$ %	
&	'	()	*	+	=	-	/ : ; < > ? @ A B C	

The Timex/Sinclair printer is relatively fast, printing at a rate of 50 to 80 characters per second. It will COPY a full 24-line screen to the printer in less than 11 seconds. It is much quieter than most dot matrix printers, making a whirring noise not much louder than a tape recorder rewinding.

This printer will be greeted with enthusiasm by serious Timex/Sinclair computer users. Writing programs without being able to print out listings has been a problem, since you could only

An earlier version has been available in England for quite some time, but the new 2040 has been changed to work with American voltages and it uses a better grade of thermal paper.

Once again, Sinclair is to be congratulated for inventing something smaller and less expensive than anyone else. Timex is to be congratulated for bringing it to America, and for energetically supporting their products. This printer fits in well with the Timex/Sinclair philosophy - it does the job without frills and without great expense to the consumer.

Timex/Sinclair 2040 Printer
Timex Computer Corporation
Waterbury, CT 06725
\$99.95

CONTINUED FROM PAGE 8

```

1500 DATA BIN 11111111,BIN 10000000,BIN 11111111,BIN 10000000,BI
N 11111111,BIN 10000000,BIN 10000000,BIN 10000000
1510 DATA BIN 11111111,BIN 00000000,BIN 11111111,BIN 00000000,BI
N 11111111,BIN 00000000,BIN 00000000,BIN 00000000
1520 DATA BIN 11111111,BIN 00000001,BIN 11111111,BIN 00000001,BI
N 11111111,BIN 00000000,BIN 00000001,BIN 00000001
1530 DATA BIN 10000000,BIN 10000000,BIN 10000000,BIN 11000000,BI
N 11100000,BIN 10110000,BIN 10011000,BIN 11111111
1540 DATA BIN 00000000,BIN 00000000,BIN 00000000,BIN 00000000,BI
N 00000000,BIN 00000000,BIN 00000000,BIN 11111111
1550 DATA BIN 00000001,BIN 00000001,BIN 00000001,BIN 00000011,BI
N 00000111,BIN 00001101,BIN 00011001,BIN 11111111
1560 DATA BIN 00010000,BIN 00010000,BIN 00111000,BIN 00111000,BI
N 00111000,BIN 01111100,BIN 01111100,BIN 11111111
1570 DATA BIN 00111000,BIN 00111000,BIN 00111000,BIN 00101000,BI
N 00101000,BIN 00100000,BIN 00111000,BIN 00000000
1580 DATA BIN 10000000,BIN 11001000,BIN 01101100,BIN 00110110,BI
N 00001011,BIN 00000001,BIN 00000000,BIN 00000000
1590 DATA BIN 00011000,BIN 00110000,BIN 01111111,BIN 11111111,BI
N 01111111,BIN 00110000,BIN 00011000,BIN 00000000
1600 DATA BIN 00011000,BIN 00001100,BIN 11111110,BIN 11111111,BI
N 11111110,BIN 00001100,BIN 00011000,BIN 00000000
1610 DATA BIN 00111100,BIN 00111100,BIN 00000000,BIN 00000000,BI
N 00000000,BIN 00000000,BIN 00000000,BIN 00000000
9998 STOP

```


PRELIMINARY SERVICE CHECKS

ENVIRONMENT

Computers perform best in a clean, cool area that is below 80 degrees Fahrenheit and free of dust and smoke particles. Even though home Computers are not affected by cigarette smoke as much as commercial Computers are affected, it is better to maintain a smoke-free area around the Computer. Do not block cabinet vents of any of the Computer system; Computer, Monitor, Printer, or other power devices.

ELECTRICAL POWER

Variations in the line voltage can affect the Computer. Try to avoid these fluctuations by using an AC receptacle that is on a power line not used by appliances or other heavy current demand devices. A power-surge protector, power-line conditioner, or non-interruptible power supply may be needed to cure the problem. Do not switch power On and Off frequently.

KEYBOARD

Liquids spilled into the Keyboard can ruin it. Immediately after a spill occurs, disconnect the Computer power plug from AC power outlet. Then, if circuitry or contacts are contaminated, disassemble the Keyboard and carefully rinse the Keyboard printed circuit board with distilled water and let it dry. Use a cotton swab to clean between the keys. Use a non-abrasive contact cleaner and lint-free wipers on accessible connectors and contacts.

DISK DRIVES

Clean the read/write heads of the Disk Drives about once a month or after 100 hours usage. Use only an approved head cleaning kit.

Handle carefully to preserve proper disk head alignment. A sudden bump or jolt to the Disk Drives can knock the disk head out of alignment. If the disk drive must be transported, place an old disk in slot and close door during transport.

Store disks in their protective covers and never touch the disk surface. Observe the disk handling precautions usually found on the back of disk protective covers.

PRINTERS

Carefully vacuum the Printer regularly. Wipe surface areas clean using a light all-purpose cleaner. Do not oil the machine. The oil will collect abrasive grit and dust. The dust will act as a blanket. This can cause components to overheat and fail.

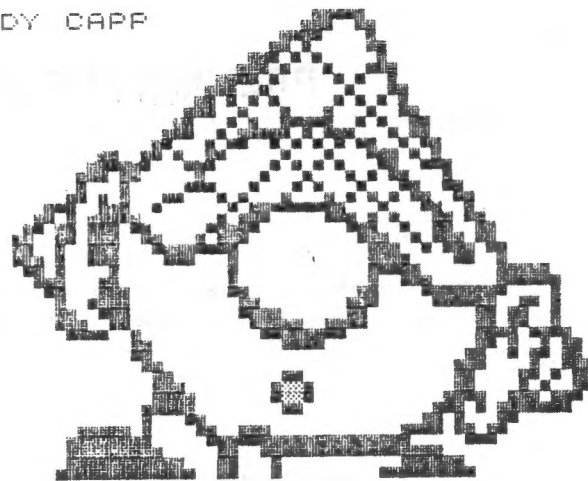
STATIC ELECTRICITY

Static electricity discharge can affect the Computer. In order to minimize the possibility, use anti-static mats, sprays, tools and materials, and maintain good humidity in the Computer environment.

MONITOR

Use an isolation transformer with any Monitor that does not come as part of the system since some Monitors use a HOT chassis (chassis connected to one side of the AC line). The face of the Monitor should never be left on for long periods of time at high brightness level except when pattern is being changed periodically. Use caution when cleaning anti-glare screens, to preserve the glare-reduction feature.





GRAPHICS REVISITED TS-2068

Do you remember an article in last months L.I.S.T.?

Well then perhaps you may have entered my program listing that was published.

We now have new graphics by Andre Baune, and he used some TS-1000 graphic chars. that weren't in the first set I received. So the original program needs a few changes to take into account these shaded characters that are not found on the TS-2068. The lines that are needed are presented after this text. They are easily added to your listing from last time.

New Lines to be added

286 IF a=136 THEN LET a=147:
RETURN

287 IF a=137 THEN LET a=148:
RETURN

288 IF a=138 THEN LET a=149:
RETURN

456 DATA 85,170,85,170,85,170,
85,170

457 DATA 255,255,255,255,85,
170,85,170

458 DATA 85,170,85,170,255,
255,255,255

488 FOR i=0 TO 47

9998 STOP

That is all that's required to allow you to be able to enter the latest graphics from ZX-91 newsletter by Andre Baune. (See last months LIST newsletter for more information.)

I decided to print the entire updated program. It appears to the left of this one.

by Tom Skapinski

```

5 INK 0: BORDER 4: PAPER 4: CLS
10 PRINT TAB 11: INVERSE 11: "DIPIC 2068"
15 PRINT "Program to convert Andre Baune's graphics for the
TS-1000 to the TS-2068
Just enter Andre's list as it appears in the sh
set he sends you with a change to DATA instead of D0"
20 PRINT "This program by Keith Skapinski 7 Atkinson La Cora
NY 11727 2/29/92"
21 REM REVISIONS 4/18/92 TO ACCOMMODATE 3 ADDITIONAL SHADED
CHARACTERS
25 PAUSE 220: CLS
30 PRINT "-----WHEN PICTURE IS 0
N THE SCREEN, PRESS (L) TO PRINT TO SIG PR. PRESS (P) TO PR
INT TO 2040 PRESS (Q) TO QU
IT"
35 INPUT "LOAD NEW DATA? (Y/N) " : A$
40 IF A$="N" OR A$="n" THEN GO TO 75
45 IF A$("<"Y" AND A$(">"Y" THEN GO TO 35
50 CLS : RANDOMIZE USR 100: CAT ""
55 INPUT "LOAD FILE? NAME.EX" : A$
60 DELETE 900: REM there must be a line 900 to WORK PROPERLY

45 RANDOMIZE USR 100: MERGE A$
70 CLS
75 CLS : GO SUB 445
80 RESTORE 1000: REM 1000
85 LET B=0: GO TO 130
90 READ A: GO SUB 230
95 LET W=A
100 READ A
105 FOR I=1 TO A
110 IF B=0 THEN PRINT CHR$ W:
115 IF B=1 THEN PRINT $1CHR$ W:
120 NEXT I
125 GO TO 195
130 READ U
135 FOR J=0 TO U
140 READ U
145 IF U=-1 THEN GO TO 205
150 IF J=22 THEN PRINT $1AT 0,U: LET B=1
155 IF J=23 THEN PRINT $1AT 1,U: LET B=1
160 IF J=28 THEN PRINT AT J,U:
165 READ U
170 FOR K=1 TO U
175 READ U
180 IF U=63 THEN GO TO 90
185 LET A=U: GO SUB 230: IF B=0 THEN PRINT CHR$ A:
190 IF B=1 THEN PRINT $1CHR$ A:
195 NEXT J
200 NEXT I
205 LET A$=INKEY$
210 IF A$="Q" OR A$="q" THEN STOP
215 IF A$="P" OR A$="p" THEN RANDOMIZE USR 45350
220 IF A$="L" OR A$="l" THEN RANDOMIZE USR 44004: REM CHANG
ETHIS VALUE FOR YOUR PRINT DRIVER
225 GO TO 205
230 REM COVERT TS1000 -> TS2068
235 IF A=0 THEN LET A=32: RETURN
240 IF A=1 THEN LET A=130: RETURN
245 IF A=2 THEN LET A=129: RETURN
250 IF A=3 THEN LET A=131: RETURN
255 IF A=4 THEN LET A=134: RETURN
260 IF A=5 THEN LET A=138: RETURN
265 IF A=6 THEN LET A=137: RETURN
270 IF A=7 THEN LET A=139: RETURN
275 IF A=8 THEN LET A=144: RETURN
280 IF A=9 THEN LET A=143: RETURN
285 IF A=10 THEN LET A=146: RETURN
286 IF A=136 THEN LET A=147: RETURN
287 IF A=137 THEN LET A=148: RETURN
288 IF A=138 THEN LET A=149: RETURN
290 IF A=11 THEN LET A=34: RETURN
295 IF A=13 THEN LET A=41: RETURN
300 IF A=14 THEN LET A=38: RETURN
305 IF A=15 THEN LET A=43: RETURN
310 IF A=16 THEN LET A=40: RETURN
315 IF A=22 THEN LET A=45: RETURN
320 IF A=23 THEN LET A=42: RETURN
325 IF A=188 THEN LET A=141: RETURN
330 IF A=129 THEN LET A=141: RETURN
335 IF A=130 THEN LET A=142: RETURN
340 IF A=131 THEN LET A=140: RETURN
345 IF A=132 THEN LET A=135: RETURN
350 IF A=133 THEN LET A=132: RETURN
355 IF A=17 THEN LET A=41: RETURN
360 IF A=131 THEN LET A=140: RETURN
365 IF A=18 THEN LET A=40: RETURN
370 IF A=19 THEN LET A=42: RETURN
375 IF A=20 THEN LET A=41: RETURN
380 IF A=21 THEN LET A=43: RETURN
385 IF A=24 THEN LET A=47: RETURN
390 IF A=25 THEN LET A=39: RETURN
395 IF A=26 THEN LET A=39: RETURN
400 IF A=27 THEN LET A=46: RETURN
405 IF A=27 AND A=38 THEN LET A=A+20: RETURN
410 IF A=37 AND A=44 THEN LET A=A+27: RETURN
415 IF A=134 THEN RETURN
420 IF A=133 THEN RETURN
425 IF A>165 AND A<192 THEN LET A=A-101: RETURN
430 BEEP 1,1: PRINT "ERROR! "A;" WAS NOT CONVERTED."
435 STOP
440 REM SHADED GRAPHICS DATA
445 DATA 170,85,170,85,170,85,170,85
450 DATA 0,0,0,0,170,85,170,85
455 DATA 170,85,170,85,0,0,0,0
456 DATA 85,170,85,170,85,170,85,170
457 DATA 255,255,255,255,85,170,85,170
458 DATA 85,170,85,170,255,255,255,255
460 REM
465 REM FULL SCREEN COPY CODE
470 DATA 243,4,192,205,5,10,201
475 RESTORE 445
480 FOR I=0 TO 47
485 READ V
490 POKE USR "A"+I,V
495 NEXT I
500 FOR I=45350 TO 45356: READ X: POKE I,X: NEXT I
505 RETURN
509 STOP
510 RANDOMIZE USR 100: SAVE "DP2068.B3"
900 REM

```



FOR SALE TS-2068

I have one extra that needs a good home.

It comes with a Spectrum rom cartridge and is in the original box. Price \$ 50.00 at meeting. If shipped price is \$ 60.00.

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